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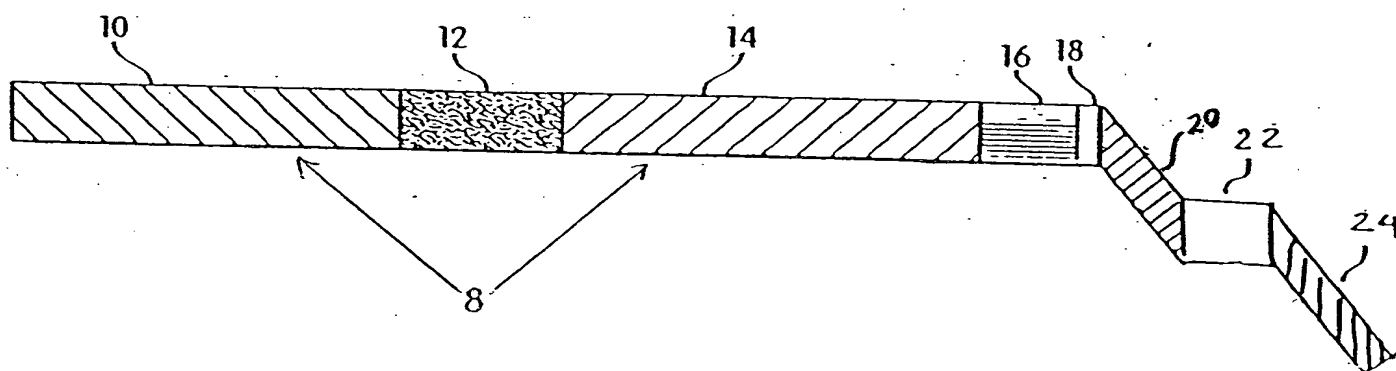
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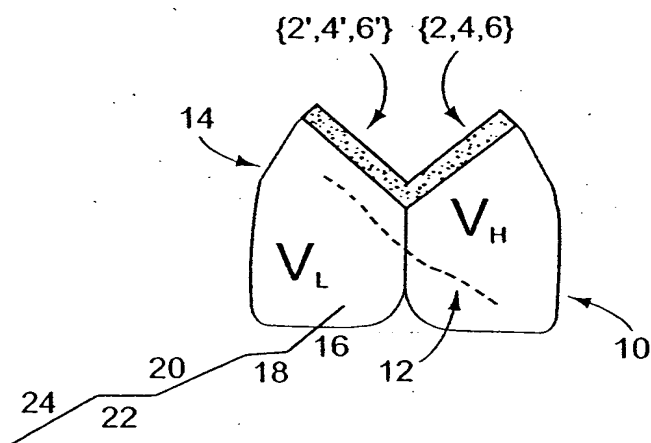
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FIGURE 1

SINGLE CHAIN BINDING POLYPEPTIDE



(a) Extended Polypeptide



(b) Folded Protein

09886721.002501
T06280.1278860

FIGURE 2

SINGLE CHAIN
BINDING POLYPEPTIDE SHOWING
LOCATIONS OF COMPLEMENTARITY
DETERMINING REGIONS, POLYPEPTIDE
SPACER REGIONS, AND EFFECTOR REGIONS

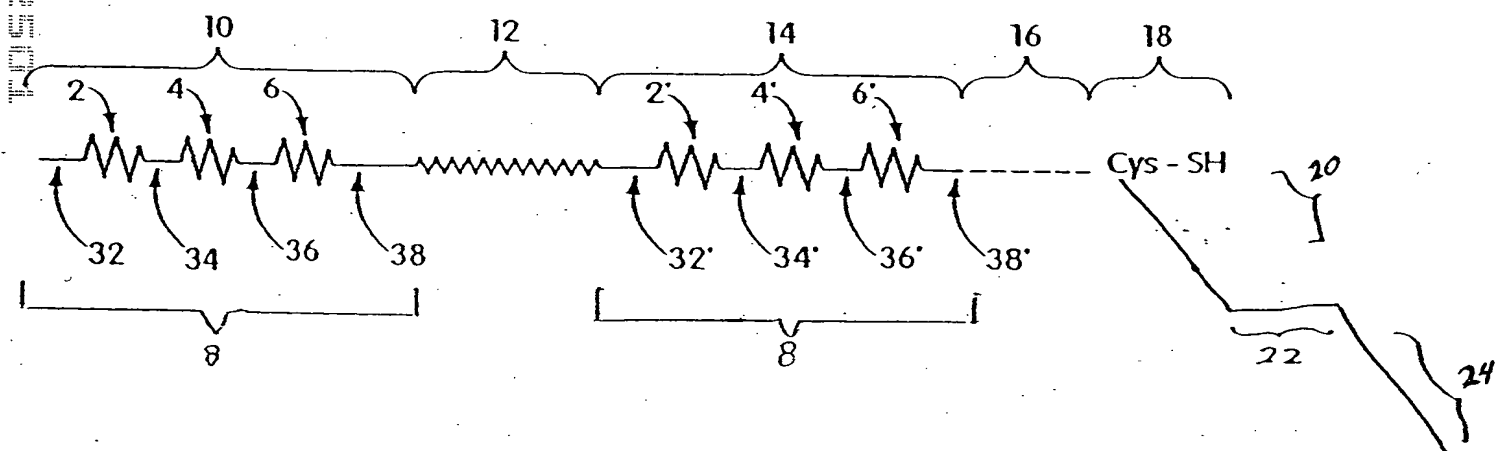


FIGURE 3

C6.5 sFv AMINO ACID SEQUENCE

(N-terminus to C-terminus)

-QVQLQLQSGAE LKPPGESLKI SCKGSGYSFT SYWIAWVRQM PGKGGLEYMGL
IYPGDSDTKY SPSFQGQVTI SVDKSVSTAY LQWSSLKPSD SAVYFCARHD
VGYCSSSNCA KWPEYFQHWG QGTLVTVSSG GGGSGGGGSG
GGGSQSVLTQ PPSVSAAPGQ KVTISCSGSS SNIGNNYVSW YQQLPGTAPK
LLIYGHTNRP AGVPDRFSGS KSGTSASLAI SGFRSEDEAD YYCAAWDDSL
SGWVFGGGTK LTVLG

FIGURE 4

C6.5 sFv NUCLEOTIDE SEQUENCE

5'caggtgcagctgttcagctctggggcagagtgaaaaaacccggggagtcctgaagatcctctgtaagggttctggataca
gctttaccagctactggatcgccctgggtgcgccagatgcccggaagcctggagtacatggggctcatctatcctggtgactc
tgacaccaaatacagcccgtcctccaaggccaggtcacatctcagtcgacaagtcgagcactgcctactgcaatggagc
agtcctgaagccctcggacagcgccgtgtatgttgcgagacatgacgtgggatattgcagtagttccaactgcgcaaagtggcc
tgaatactccagcattggggccagggcacccctggtcaccgtctcctcaggtggaggcgggtcaggcggagggtggctctggcg
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gcagctccaacattgggaataattatgtatcctggtaccagcagctcccaggaacagcccccaactcctcatctatggtcacacca
atcgggcccgagggtccctgaccgattctctggctccaagctcggcacctcagcctccctggccatcagtggggtccggtccga
ggatgaggctgattattactgtgcagcatgggatgacagcctgagtggttgggtgttcggcggagggaaccaagctgaccgtcct
aggt 3'

FIGURE 5

C6ML3-9 sFv' AMINO ACID SEQUENCE

(N-terminus to C-terminus)

-QVQLVQSGAE VKKPGESLKI SCKGSGYSFT SYWIAWVRQM PGKGGLEYMGL
IYPGDSDTKY SPSFQGQVTI SVDKSVSTAY LQWSSLKPSD SAVYFCARHD
VGYCSSSNCA KWPEYFQHWG QGTLVTVSSG GGGSGGGGSG
GGGSQSVLTQ PPSVSAAPGQ KVTISCSGSS SNIGNNYVSW YQQLPGTAPK
LLIYDHTNRP AGVPDRFSGS KSGTSASLAI SGFRSEDEAD YYCASWDYTL
SGWVFGGGTK LTVLGAAAH HHHHGGGGC-

FIGURE 6

C6ML3-9 sFv' NUCLEOTIDE SEQUENCE

5' caggtgcagctggtgcagtctggggcagaggtgaaaagcccggggagtcctctgaagatcctgtaagggtctggata
cagctttaccagctactggatcgctgggtgcgccagatgcccggaaggcctggagtacatggggctcatctatcctg
gtgactctgacaccaaatacagccgctcctccaaggccaggtcacatctcagtcgacaagtccgtcagcactgcctac
ttgcaatggagcagtctgaagccctcggacagcggcgtgtattttgtgcgagacatgacgtgggatattgcagtagttc
caactgcgcaaagtggcctgaatacttcagcattggggccagggcacccctggteaccgtctcctcaggtggaggcggtt
caggcggaggtggctctggcgggtggcgatcgagtcgtgttgacgcagccgcccctcagtgctgcggccccaggacag
aaggtcacatctcctgctctggaagcagctccaacattgggaataattatgtatcctgggtaccagcagctcccaggaac
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cctcagcctccctggccatcagtggttccgggtccgaggtgaggctgattattactgtgcctcctgggactacaccctc
tcgggctgggtgttcggcgagggaaccaagctgaccgtcctaggtgcggccgcacaccatcatcaccatcacgggtggtg
cggtgc 3'

FIGURE 7

C6ML3-9sFv'-L1-KDEL AMINO ACID SEQUENCE

(N-terminus to C-terminus)

-QVQLVQSGAE VKKPGESLKI SCKGSGYSFT SYWIAWVRQM PGKGLEYMGL
IYPGDSDTKY SPSFQGQVTI SVDKSVSTAY LQWSSLKPSD SAVYFCARHD
VGYCSSNCA KWPEYFQHWG QGTLVTVSSG GGS SGGGGSG
GGGSQSVLTQ PPSVSAAPGQ KVTISCSGSS SNIGNNYVSW YQQLPGTAPK
LLIYDHTNRP AGVPDRFSGS KSGTSASLAI SGFRSEDEAD YYCASWDYTL
SGWVFGGGTK LTVLGAAAH HHHHGGGGCL ESSSSGSEKD EL-

FIGURE 8

C6ML3-9 sFv'-L1-KDEL NUCLEOTIDE SEQUENCE

5' caggtgcagctggtgcagtctggggcagaggtgaaaaagccggggagtctctgaagatctcctgtaagggttctggata
cagctttaccagctactggatcgctgggtgcgccagatgcccgggaaaggcctggagtacatggggctcatctatcctg
gtgactctgacaccaaatacagcccgtcctccaaggccaggtcaccatctcagtcgacaagtccgtcagcactgcctac
ttgcaatggagcagctgaagccctcggacagcgccgtgtatfttgtgcgagacatgacgtgggatattgcagtagttc
caactgcgcaaagtggcctgaatactccagcattggggccagggcaccctggtcaccgtctcctcaggtggaggcggtt
caggcggaggtggctctggcggtggcggtatcgagctctgtgttgacgcagccgccctcagtgctgcggccccaggacag
aaggtcaccatctcctgctctggaagcagctccaacattgggaataattatgtatcctggtagcagctcccagggaac
agcccccaaaactctcatctatgatcaccaatcgcccgaggggtccctgaccgattctctggctccaagtctggca
cctcagcctccctggccatcagtggttccgggtccgaggtgaggctgatttactgtgcctcctgggactacaccctc
tcgggctgggtgttcggcgagggaaccaagctgaccgtcctaggtgcggccgcacaccatcatcaccatcacggtggtgg
cggctgcctcgagtcct ctagctctgg atccgaaaaa gatgaactg3'

FIGURE 9

C6ML3-9 sFv'-L2-KDEL AMINO ACID SEQUENCE

(N-terminus to C-terminus)

-QVQLVQSGAE VKKPGESLKI SCKGSGYSFT SYWIAWVRQM PGKGLEYMGL
IYPGDSDTKY SPSFQGQVTI SVDKSVSTAY LQWSSLKPSD SAVYFCARHD
VGYCSSSNCA KWPEYFQHWG QGTLVTVSSG GGGSGGGGSG
GGGSQSVLTQ PPSVSAAPGQ KVTISCSGSS SNIGNNYVSW YQQLPGTAPK
LLIYDHTNRP AGVPDRFSGS KSGTSASLAI SGFRSEDEAD YYCASWDYTL
SGWVFGGGTK LTVLGAAAH HHHHGGGGCL ESSSSGSSSS GSEKDEL-

FIGURE 10

C6ML3-9sFv'-L2-KDEL NUCLEOTIDE SEQUENCE

5' caggtgcagctggtgcagctctggggcagaggtgaaaaagcccggggagtctctgaagatctcctgtaagggttctggata
cagctttaccagctactggatcgctgggtgcgccagatgccgggaaaggcctggagtacatggggctcatctatcctg
gtgactctgacaccaaatacagcccgctcctccaaggccaggcaccatctcagtcgacaagtcgctcagcactgcctac
ttgcaatggagcagctctgaagccctcggacagcgccgtgtattttgtgcgagacatgacgtgggatattgcagtagtgc
caactgcgcaaagtggcctgaatacttcagcattggggccagggcaccctggtcaccgtctcctcaggtggaggcggtt
caggcggaggtggctctggcgggtggcggatcgagctctgtgtgacgcagccgcccctcagtgctcgcggccccaggacag
aaggcaccatctcctgctctggaagcagctccaacattgggaataattatgtatcctgggtaccagcagctcccaggaac
agccccaaactcctcatctatgatcacaccaatcgccccgcaggggtccctgaccgattctctggctccaagtctggca
cctcagcctccctggccatcagtggttccgggtccgaggatgaggctgattattactgtgcctcctgggactacacccctc
tcgggctgggtgttcggcggaggaaccaagctgaccgtcctaggtgcggccgcacaccatcatcaccatcacgggtggtgg
cggctgcctcgagtcta gcagctccgg ttcctctagc tctggatccg aaaaagatga actg 3'

FIGURE 11

C6ML3-9 sFv'-L2-H14 AMINO ACID SEQUENCE

(N-terminus to C-terminus)

-QVQLVQSGAE VKKPGESLKI SCKGSGYSFT SYWIAWVRQM PGKGGLEYMG
IYPGDSSTKY SPSFQGQVTI SVDKSVSTAY LQWSSLKPSD SAVYFCARHD
VGYCSSNCA KWPEYFQHWG QGTLVTVSSG GGGSGGGGSG
GGGSQSVLTQ PPSVSAAPGQ KVTISCSGSS SNIGNNYVSW YQQLPGTAPK
LLIYDHTNRP AGVPDRFSGS KSGTSASLAI SGFRSEDEAD YYCASWDYTL
SGWVFGGGTK LTVLGAAAH HHHHGGGGCL ESSSSGSSSS
GSKKSAKKTP KKAKKP-

FIGURE 12

C6ML3-9 sFv' -L2-H14 NUCLEOTIDE SEQUENCE

5' caggtgcagctggtgcagctctggggcagaggtgaaaaagcccggggagtcctgaagatctcctgtaagggttctggata
cagctttaccagctactggatcgccctgggtgcgccagatgcccgggaaaggcctggagtacatggggctcatctatcctg
gtgactctgacaccaaatacagcccgtccttccaaggccaggtcaccatctcagtcgacaagtccgtcagcactgcctac
ttgcaatggagcagctctgaagccctcggacagcgccgtgtatgttgctgcgagacatgacgtgggatattgcagtagttc
caactgcgcaaagtggcctgaatacttccagcattggggccagggcaccctggtcaccgtctcctcaggtggaggcgggt
caggcggagggtggctctggcgggtggcgatcgagctctgtgtgacgcagccgccctcagtgctcgcggccccaggacag
aaggtcaccatctcctgctctggaagcagctccaacattgggaataattatgtatcctggtaccagcagctcccaggaa
agccccaaactcctcatctatgatcacaccaatcgccccgcaggggtccctgaccgattctctggctccaagtctggca
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tcgggctgggtgttcggcggaggaaccaagctgaccgtcctaggtgcggccgcacaccatcatcaccatcacgggtggtgg
cggctgc ctcgagtcta gcagctccgg ttcctctagc tctggatcca agaaaagcgc gaaaaagacc ccgaagaaag
cgaagaaacc g 3'

FIGURE 13

C6ML3-9sFv'-L2-nls AMINO ACID SEQUENCE

(N-terminus to C-terminus)

-QVQLVQSGAE VKKPGESLKI SCKGSGYSFT SYWIAWVRQM PGKGLEYMGL
IYPGDSDTKY SPSFQGQVTI SVDKSVSTAY LQWSSLKPSD SAVYFCARHD
VGYCSSSNCA KWPEYFQHWG QGTLVTVSSG GGGSGGGGSG
GGGSQSVLTQ PPSVSAAPGQ KVTISCSGSS SNIGNNYVSW YQQLPGTAPK
LLIYDHTNRP AGVPDRFSGS KSGTSASLAI SGFRSEDEAD YYCASWDYTL
SGWVFGGGTK LTVLGAAAH HHHHGGGGCL ESSSSGSSSS
GSTPPKKKRK V

FIGURE 14

C6ML3-9 sFv'-L2-nls NUCLEOTIDE SEQUENCE

5' caggtgcagctggtgcagctctggggcagaggtgaaaaagcccggggagctctgaagatctcctgtaagggttctggata
cagctttaccagctactggatcgcttgggtgcgccagatgccgggaaaggcctggagtacatggggctcatctatcctg
gtgactctgacaccaaatacagcccgtccttccaaggccaggtcaccatctcagtcgacaagtcctgcagcactgcctac
ttgcaatggagcagctctgaagccctcggacagcgccgtgtattttgtgcgagacatgacgtgggatattgcagtagttc
caactgcgcaaagtggcctgaatacttccagcattggggccagggcaccctggtcaccgtctcctcaggtggaggcggtt
caggcggaggtggctctggcgggtggcggatcgagctctgtgtgacgcagcgccctcagtgctctgcggccccaggacag
aaggtcaccatctcctgctctggaagcagctccaacattgggaataattatgtatcctggtaccagcagctcccaggaa
agccccaaactcctcatctatgatcacaccaatcgccccgcaggggtccctgaccgattctctggctccaagtctggca
cctcagcctccctggccatcagtggttccgggtccgaggatgaggctgattattactgtgctcctgggactacaccctc
tcgggctgggtgttcggcggaggaaccaagctgaccgtcctaggtgcggccgcacaccatcatcaccatcacgggtggtg
cggtgc ctcgagtcta gcagctccgg ttctctagc tctggatcca ctccgccgaa aaagaacgt aaagtg 3'

Figure 15. C6ML3-9 sFv' and its salmon protamine conjugate binds specifically to the erbB-2 positive ovarian cancer cells

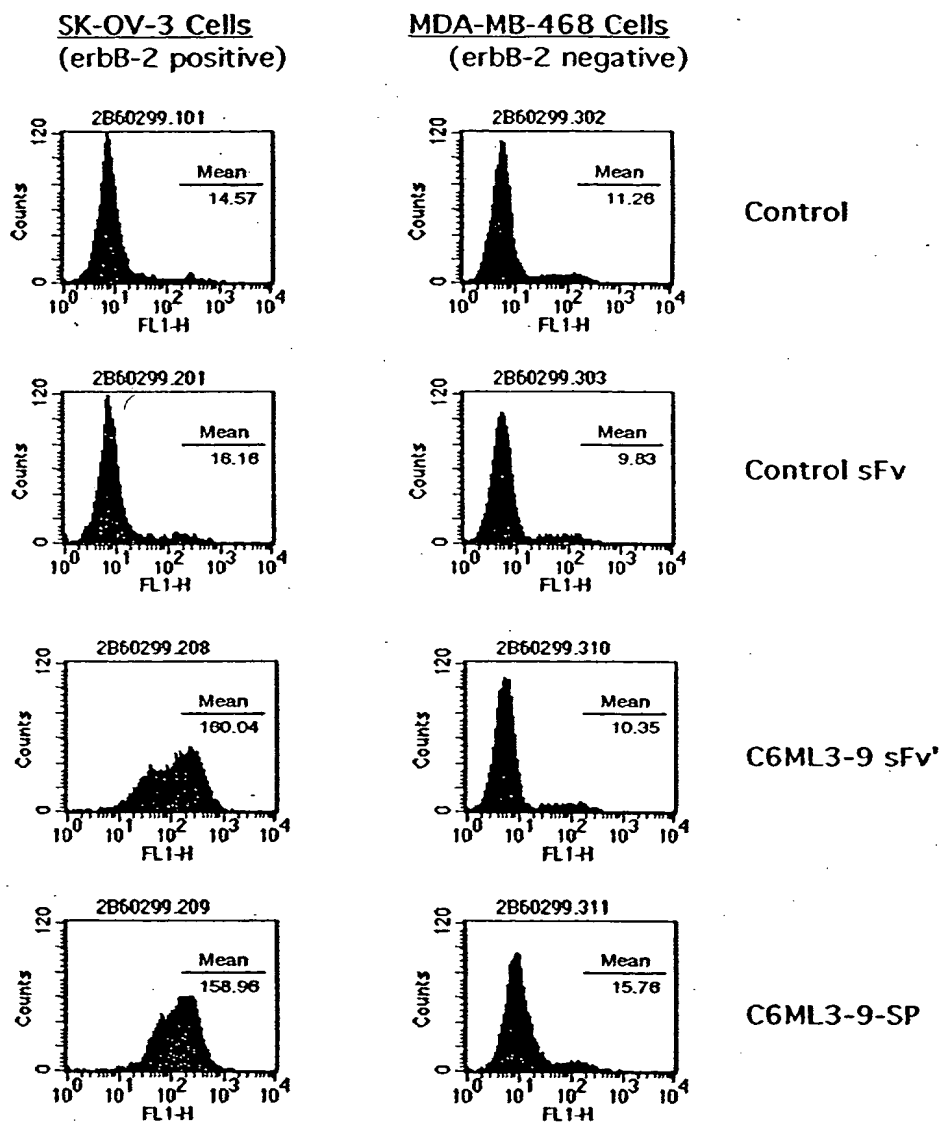
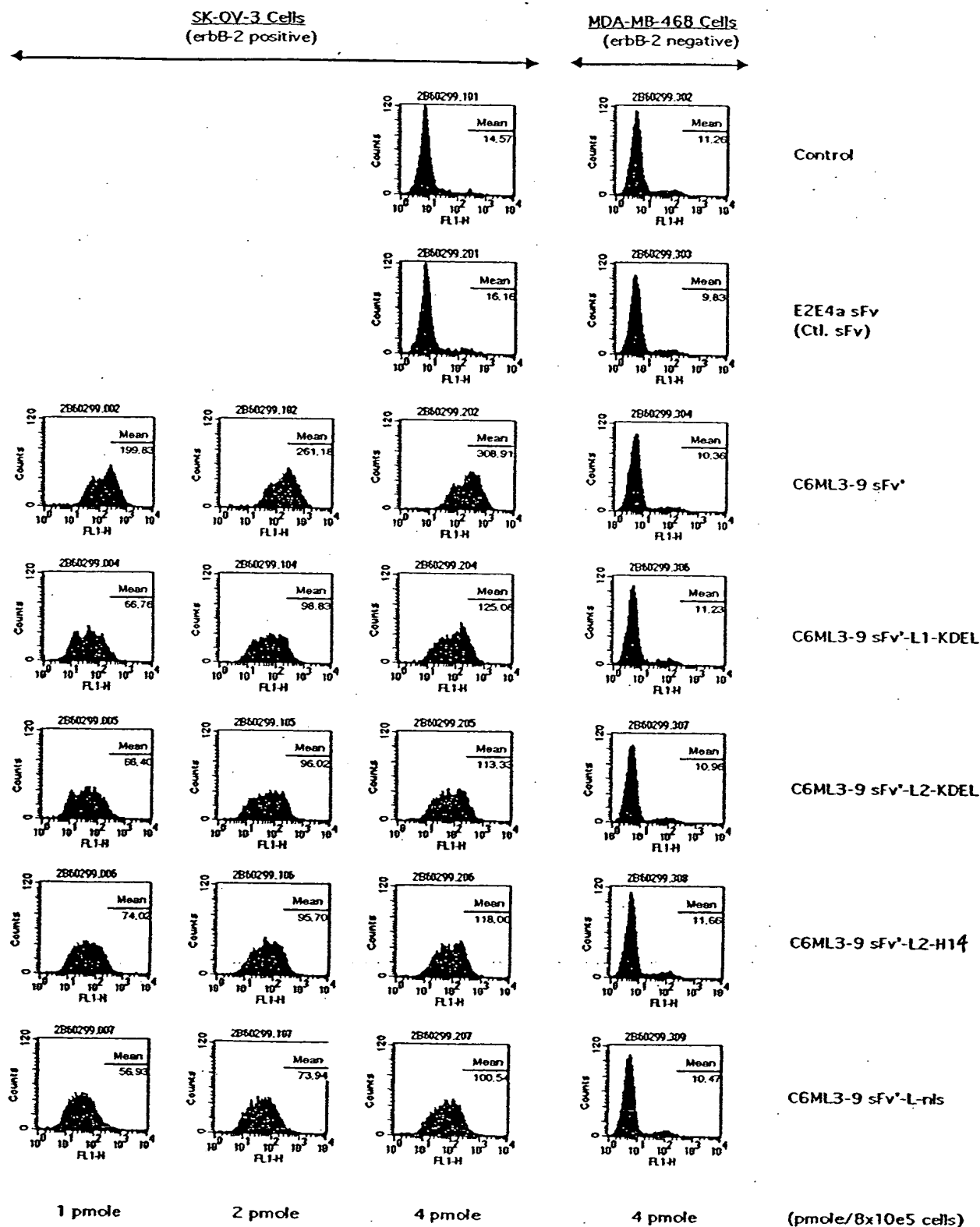


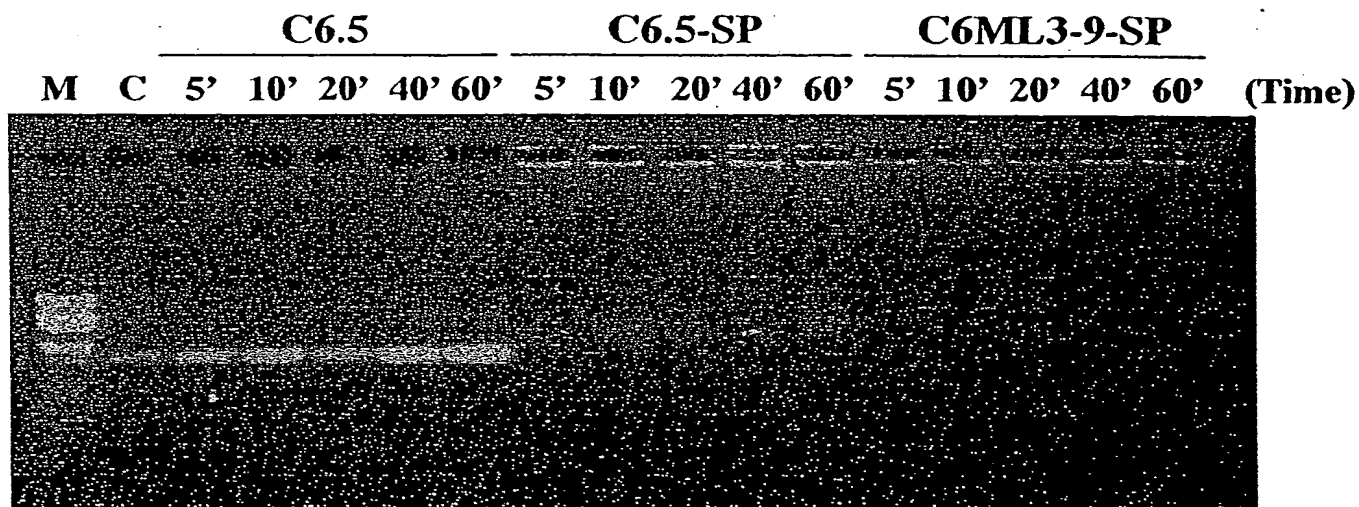
Figure 16. FACS Analysis of the erbB-2 Binding Activities of Bacterially Expressed C6ML3-9 sFv' and its Derivatives



[illegible]

- *0.8% agarose gel in 1xTAE, 150v, RT, ~1hr, EtBr staining overnight

Figure 18. Kinetic Study of the C6.5-SP-DNA and C6ML3-9-SP-DNA Complex Formation



M. DNA marker - λ DNA BstEII digest

C. 200 ng pGL3 DNA alone

* The rest of the lanes - 200 ng pGL3 DNA incubated with 5.8 pmol proteins as indicated above each line, on ice, for different period of time. Electrophoresis condition same as Figure 3.

Figure 19. The C6ML3-9-SP conjugate protein mediates specific luciferase gene delivery to erbB-2 positive cancer cells

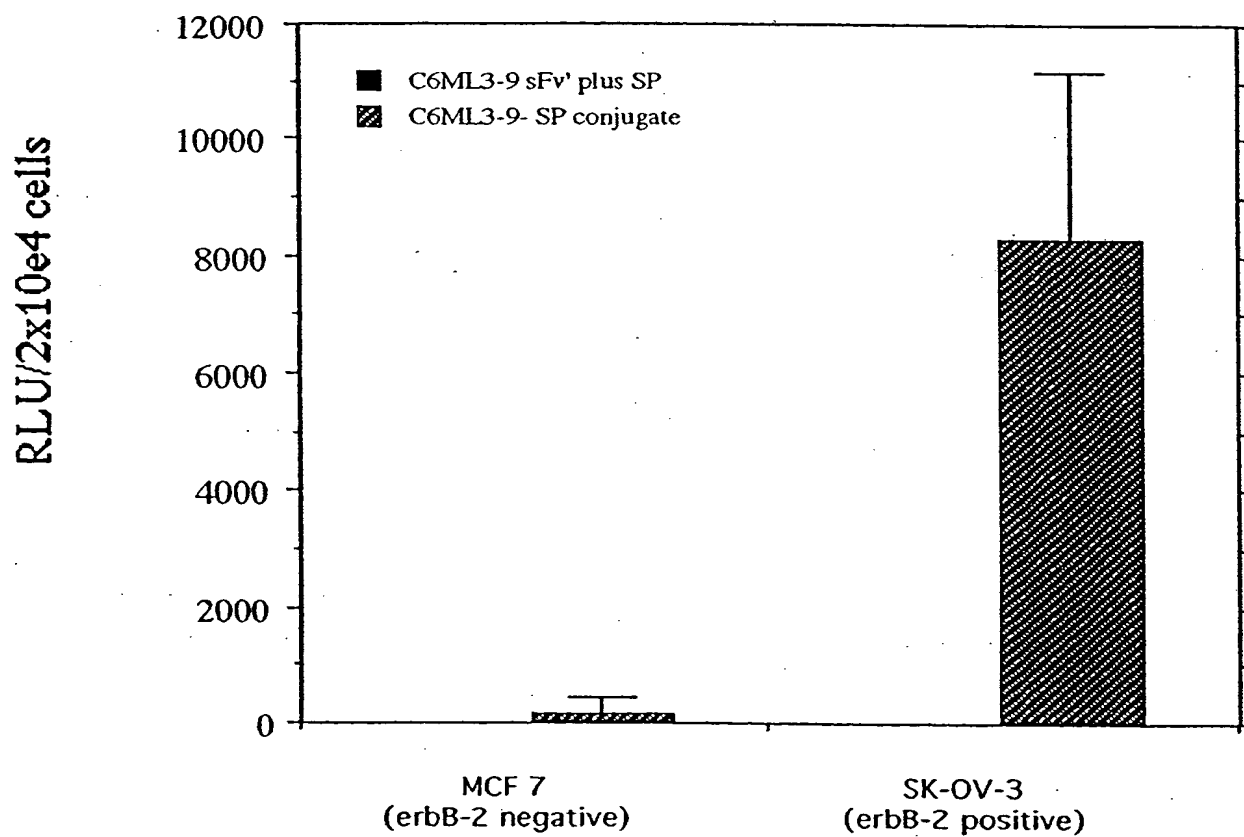


Figure 20. Chloroquine-dependent C6ML3-9-SP-mediated Gene Delivery

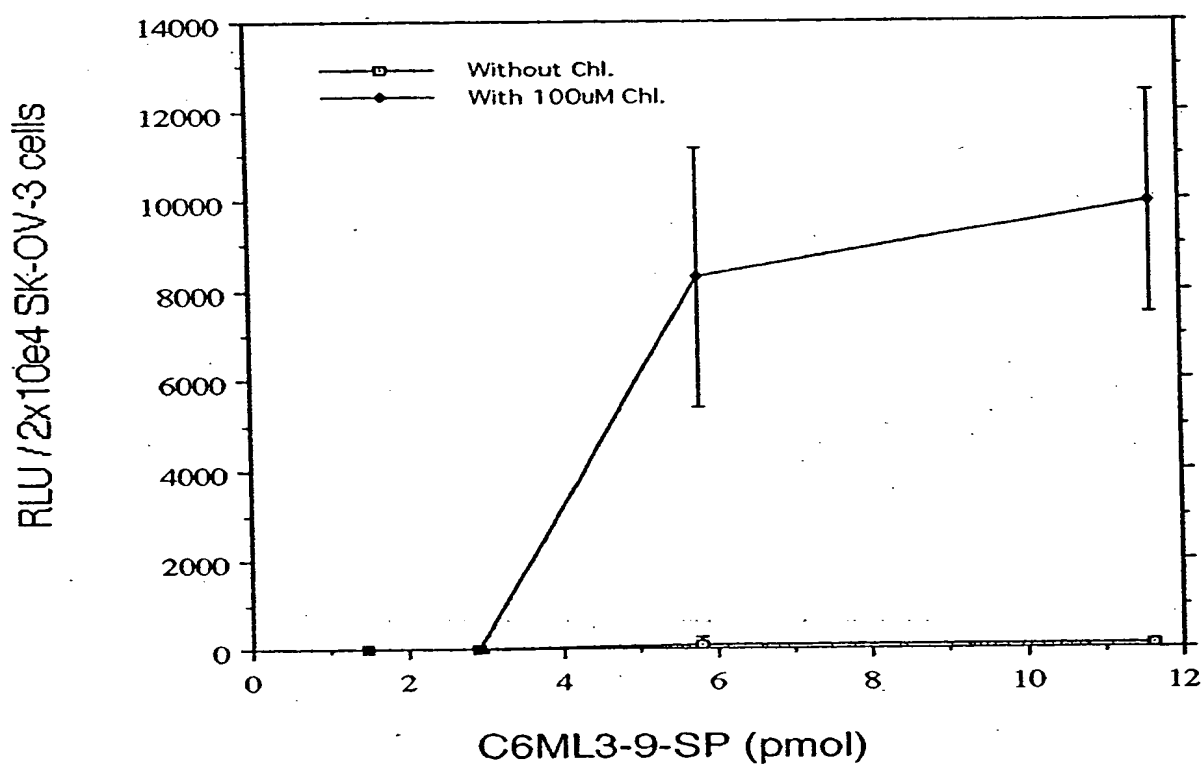
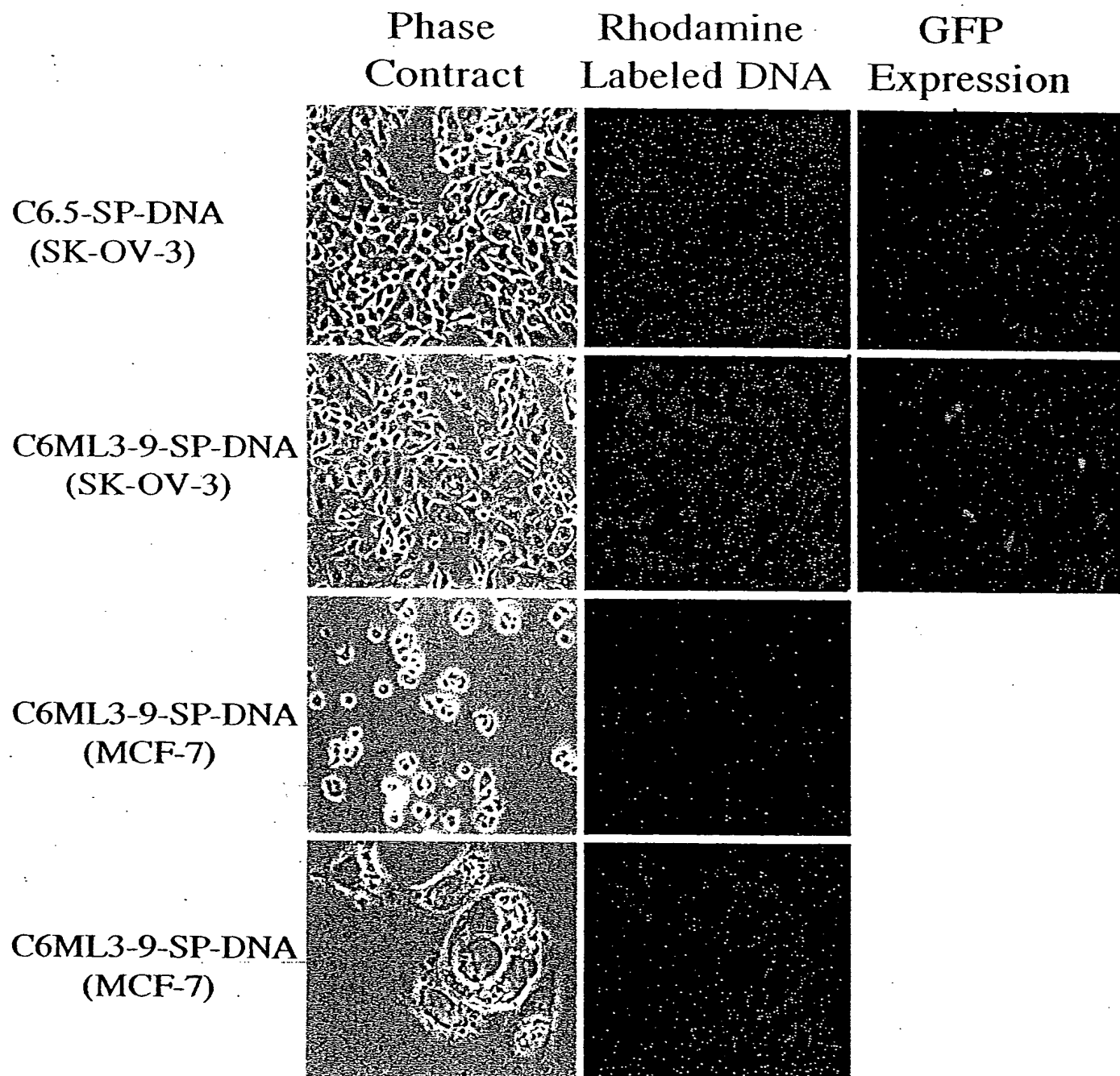


Figure 21. Fluorescent microscopy of C6.5-SP and C6ML3-9-SP-mediated gene transfer of pGeneGrip Rhodamine/GFP plasmids with SK-OV-3 and MCF-7



05688721.062501

FIGURE 22

THE EFFECT OF CHLOROQUINE ON 3T3-HER2 TRANSFECTION MEDIATED BY C6ML3-9sFv'-SALMON PROTAMINE

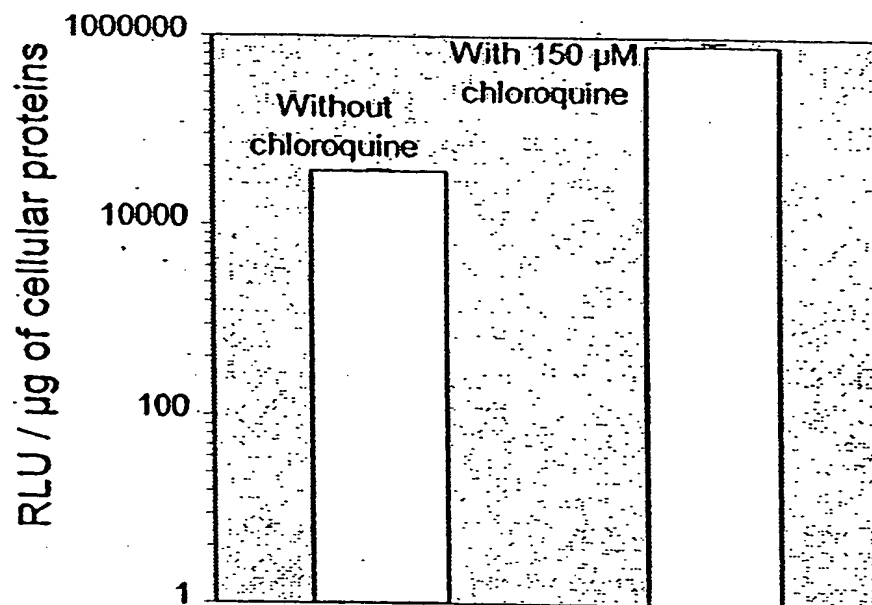


FIGURE 23

THE EFFECT OF CHLOROQUINE ON 3T3-HER2 TRANSFECTION MEDIATED BY C6ML3-9sFv'#2-P1

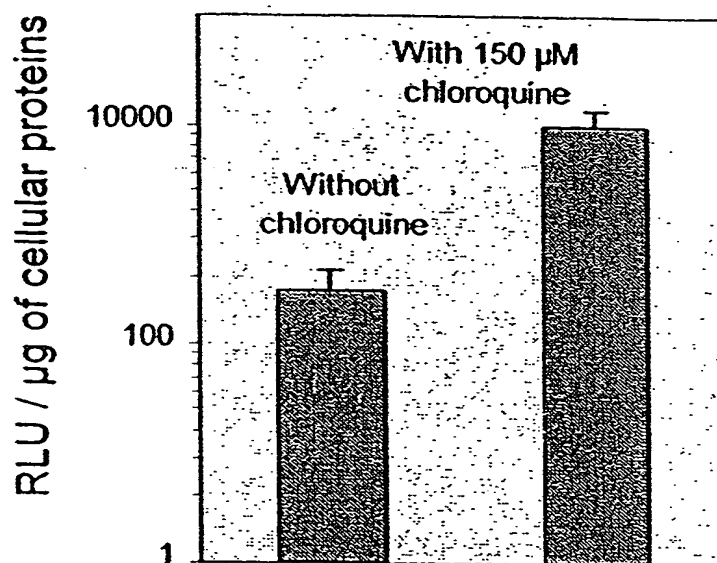


FIGURE 24

THE EFFECT OF CHLOROQUINE ON 3T3-HER2
TRANSFECTION MEDIATED BY C6ML3-9sFv'#2-H1

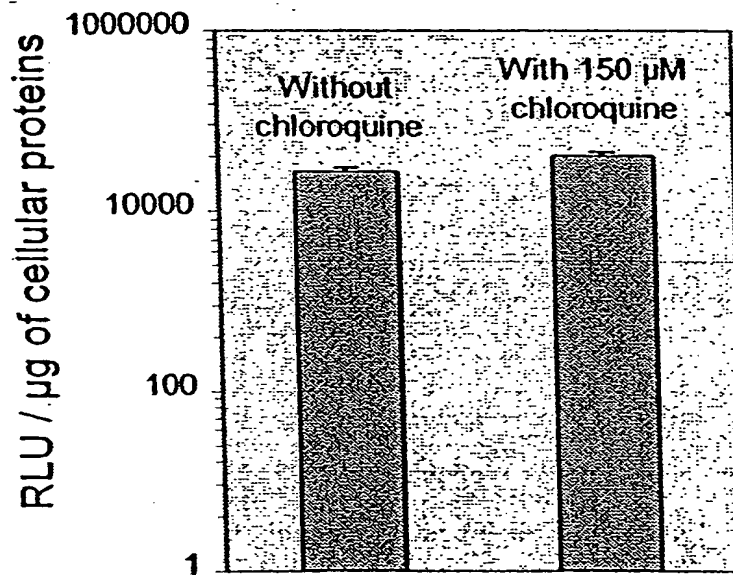


FIGURE 25

THE EFFECT OF
C6ML3-9sFv'-H1-pBks ON 3T3-HER2
TRANSFECTION MEDIATED BY C6ML3-9sFv'-H1

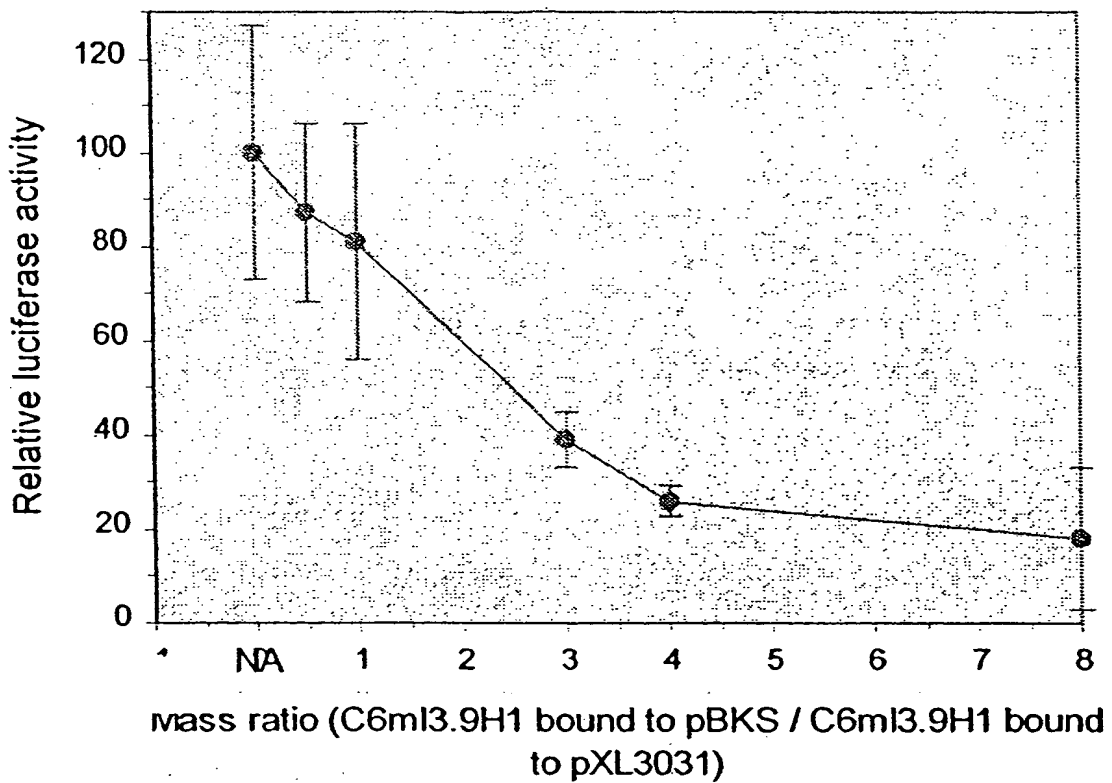


FIGURE 2

THE EFFECT OF THE DNA TO C6ML3-9sFv'-H1
RATIO ON 3T3-HER2 TRANSFECTION EFFICIENCY

